

## Long Distance Resale Agreements

FACILITIES BASED CARRIER	ILEC/BOC
WorldCom	Ameritech <sup>(1)</sup>
WorldCom	GTE <sup>(2)</sup>
Sprint	Bell Atlantic & Nynex <sup>(3)</sup>
Sprint	Pacific Telesis & SBC Communications <sup>(4)</sup>
AT&T	Letter of Intent with BellSouth <sup>(5)</sup>

Source: (1) Ameritech News Release, *Ameritech Announces Immediate Cellular Long-Distance Service*, February 12, 1996.

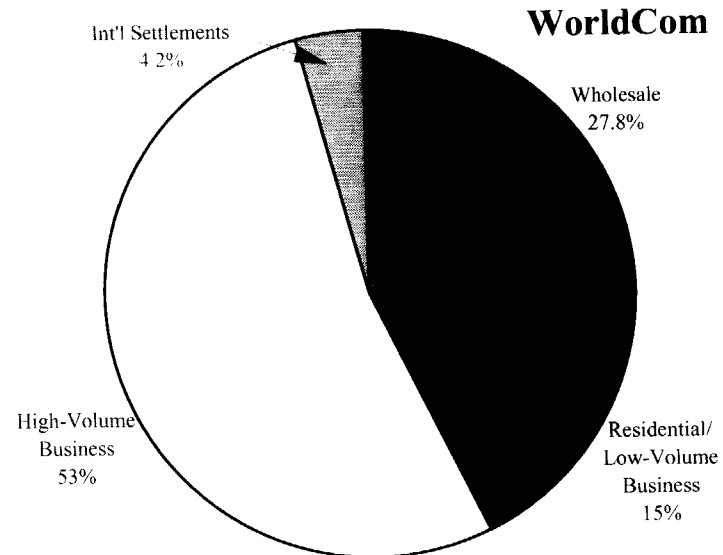
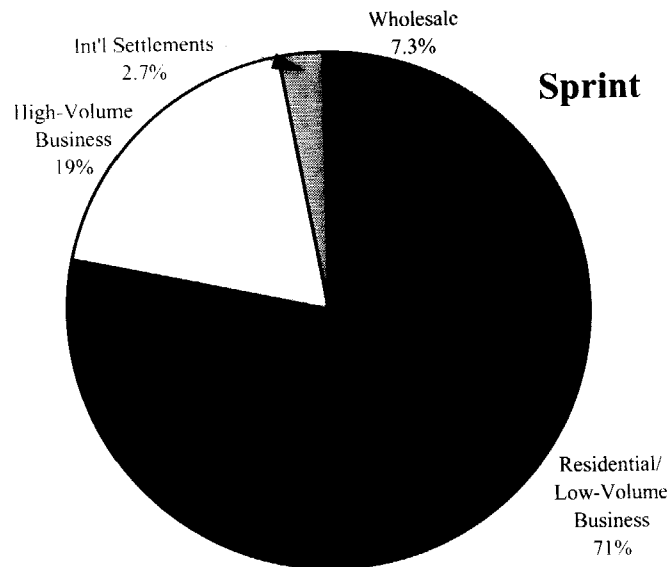
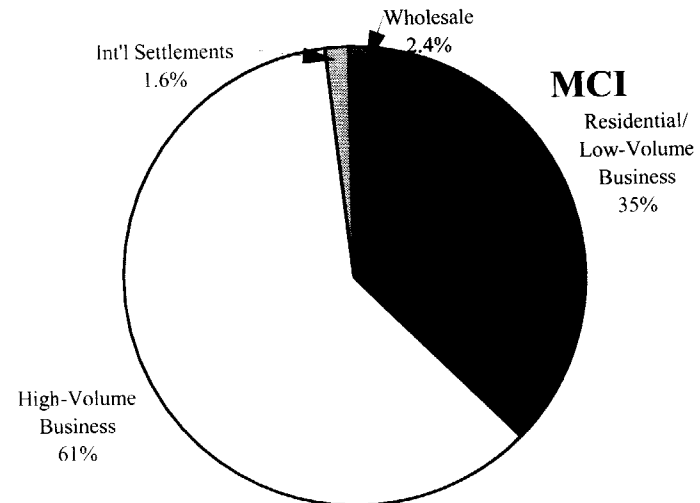
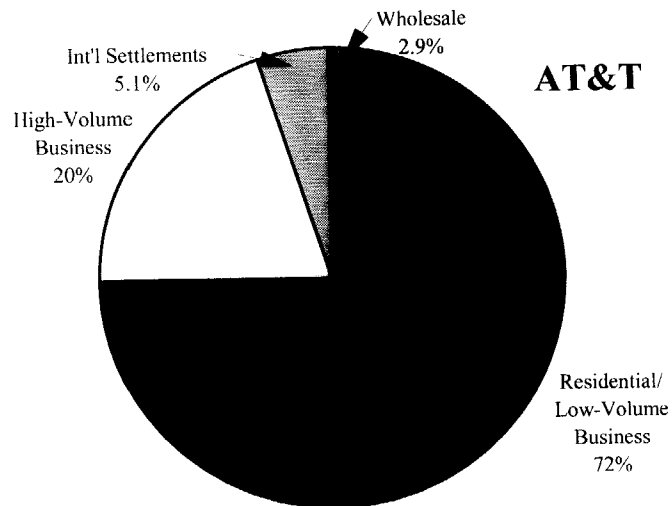
(2) GTE Press Release, *GTE and LDDS Sign Long-Term Service Agreement in Support of GTE's Entry into Long Distance*, February 8, 1996.

(3) Bell Atlantic News Release, *Bell Atlantic Selects Sprint as a Long-Distance Services Provider*, March 11, 1996.

(4) SBC Communications News Release, *Pacific Telesis, SBC Enter Contract Negotiations with Sprint for Long-Distance Services, Memorandum of Understanding Signed*, July 9, 1996.

(5) Gail Lawyer, *Bells Contemplate Long-Distance Options: Resale Emerges as a Likely Opening Strategy for Delivering In-Region Long-Distance Service*, 8/97. [Http://www.teledotcom.com/0897/headend/tdc0897headend\\_inregion.html](http://www.teledotcom.com/0897/headend/tdc0897headend_inregion.html).

## Proportion of 1997 Long-Distance Revenue By Customer Class



## Analysis Of Wholesale and Retail Margins For Long-Distance Service

### 1997 Average Cents Per Conversation Minute

	<u>Wholesale</u>	<u>Retail</u>
(1) End-User Revenue	1.5	13.5
(2) Access Charges	<u>0.0</u>	<u>(6.7)</u>
(3) Net Revenue	1.5	6.8
(4) Network Incremental Cost	(1.0)	(1.0)
(5) <u>SG &amp; A</u>	<u>(0.3)</u>	<u>(3.7)</u>
(6) Margin	0.2	2.1

---

Sources: Wholesale and retail revenues per minute, and access charges from *Declaration of Robert Hall*,

CC Docket No. 97-211, January 26, 1998, p.13, expressed in constant 1996 dollars.

Network incremental costs are approximately estimated from *Declaration of Robert Hall*, p. 18

SG&A costs based on 1996 SG&A ratios for MCI (Retail) and WorldCom (Wholesale), from SEC filings.

**Harris Reply Exhibit 6**

**Merger Would Eliminate WorldCom's Incentive to Supply Wholesale Service**

**Estimated Retail Market Shares**

WorldCom	5.0%
MCI	20.9%
<b>MCI-WorldCom</b>	<b>25.9%</b>

**Market Segment: All Consumers**

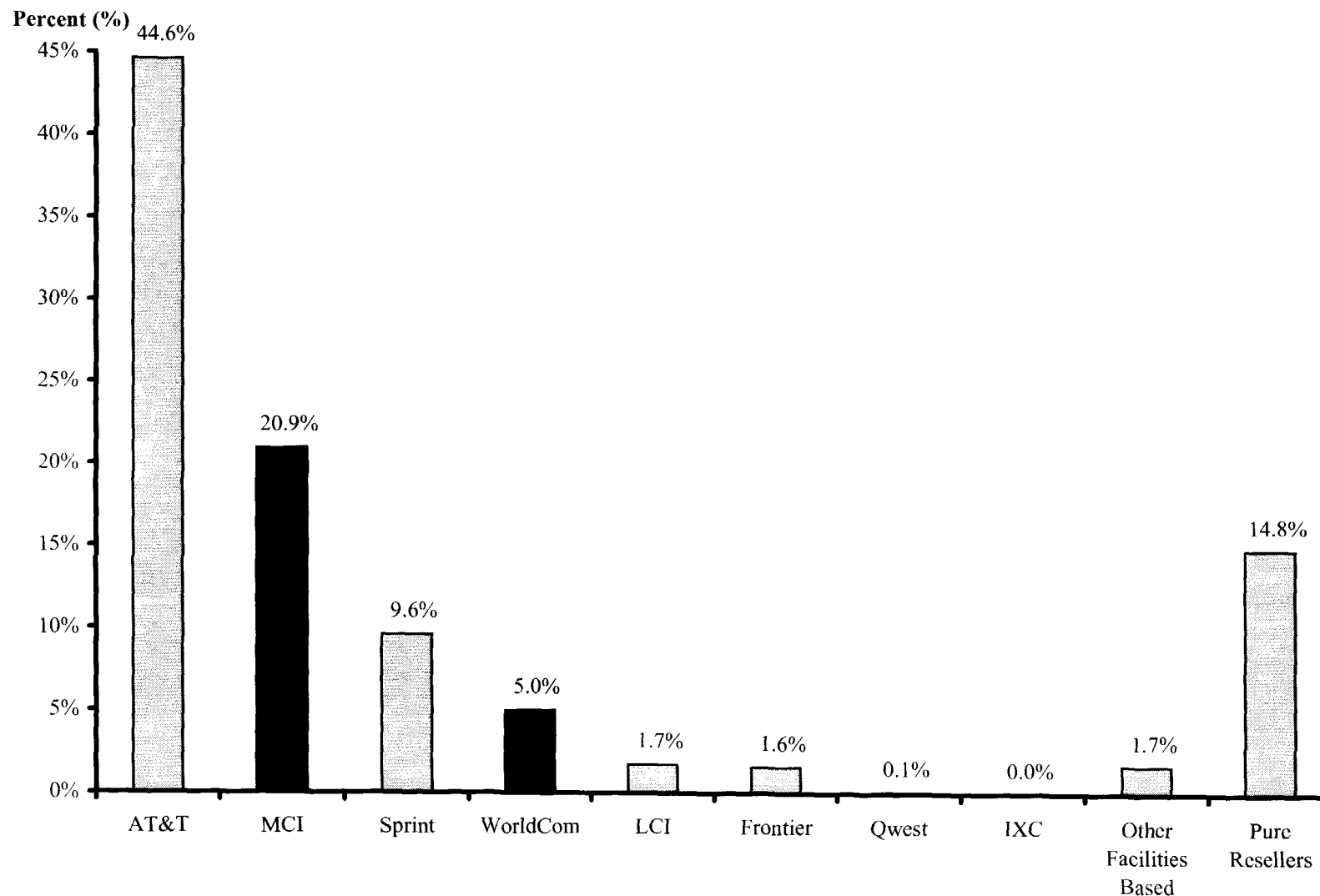
	<b><u>Worldcom</u></b>	<b><u>MCI WorldCom</u></b>
(1) Retail Share	5.0%	25.9%
(2) Retail Margin	2.1	2.1
(3) Opportunity Cost of Incremental Wholesale Minute	(0.1)	(0.6)
(4) <u>Expected Wholesale Margin</u>	<u>0.2</u>	<u>0.2</u>
(5) Net Gain/(Loss)	0.1	(0.3)

---

Sources: Retail market shares computed from Frost & Sullivan estimates of carriers' 1997 total and wholesale revenues.

Retail margins from Harris Reply Exhibit 5.

## Estimated Shares of Retail Long Distance Revenues (1997)



Source: Facilities Based Carriers' Retail Revenues As Estimated By Frost & Sullivan, Adjusted For International Settlements.  
Pure Reseller Revenues From 96/97 FCC Statistics of Common Communications Carriers (Projected).

## Merger Would Not Affect Qwest or LCI's Incentive to Supply Wholesale Service

### Estimated Retail Market Shares

Qwest	0.1%
LCI	1.7%
<u>Qwest + LCI</u>	<u>1.8%</u>

### Market Segment: Residential/Small Business

	<u>Qwest</u>	<u>Qwest+LCI</u>
(1) Retail Share	0.1%	1.8%
(2) Retail Margin	2.1	2.1
(3) Opportunity Cost of Incremental Wholesale Minute	(0.0)	(0.0)
(4) <u>Expected Wholesale Margin</u>	<u>0.2</u>	<u>0.2</u>
(5) Net Gain/(Loss)	0.2	0.2

---

Sources: Retail market shares computed from Frost & Sullivan estimates of carriers' 1997 total and wholesale revenues.

Retail margins from Harris Reply Exhibit 5.

## Telecom\*USA No Longer Offers Competitive Rates

### Total Cost of San Francisco - New York City Call Using

	Telecom*USA <sup>1</sup>	MCI One <sup>2</sup>	AT&T One Rate Online <sup>3</sup>
<b>10-Minute Call</b>			
Weekday Peak Hours	\$2.79	\$2.50	\$1.00
Weekday Off-Peak Hours	\$1.27	\$1.00	\$1.00
Sunday	\$1.29	\$0.50	\$1.00
<b>25-Minute Call</b>			
Weekday Peak Hours	\$3.50	\$6.25	\$2.50
Weekday Off-Peak Hours	\$1.69	\$2.50	\$2.50
Sunday	\$1.74	\$1.25	\$2.50

Sources:

1. Telecom\*USA. 1-800-476-1234. 5/4/98.
2. <http://www.mci.com>. MCI One has a monthly minimum charge of \$5.
3. <http://www.att.com>. AT&T One Rate Online has a monthly service fee of \$1.

## Urban LATAs Enjoy More Competitive Rates

### LATAs Upgraded To Tier A in 1997\*

Number	1996 Tier	Name
324	B	Columbus, OH
328	C	Dayton, OH
422	B	Charlotte, NC
424	B	Greensboro, NC
468	B	Memphis, TN
664	C	New Mexico, NM
668	B	Tucson, AZ
674	B	Seattle, WA
726	B	Sacramento, CA
922	B	Cincinnati, OH

### Sample of LATAs Unchanged

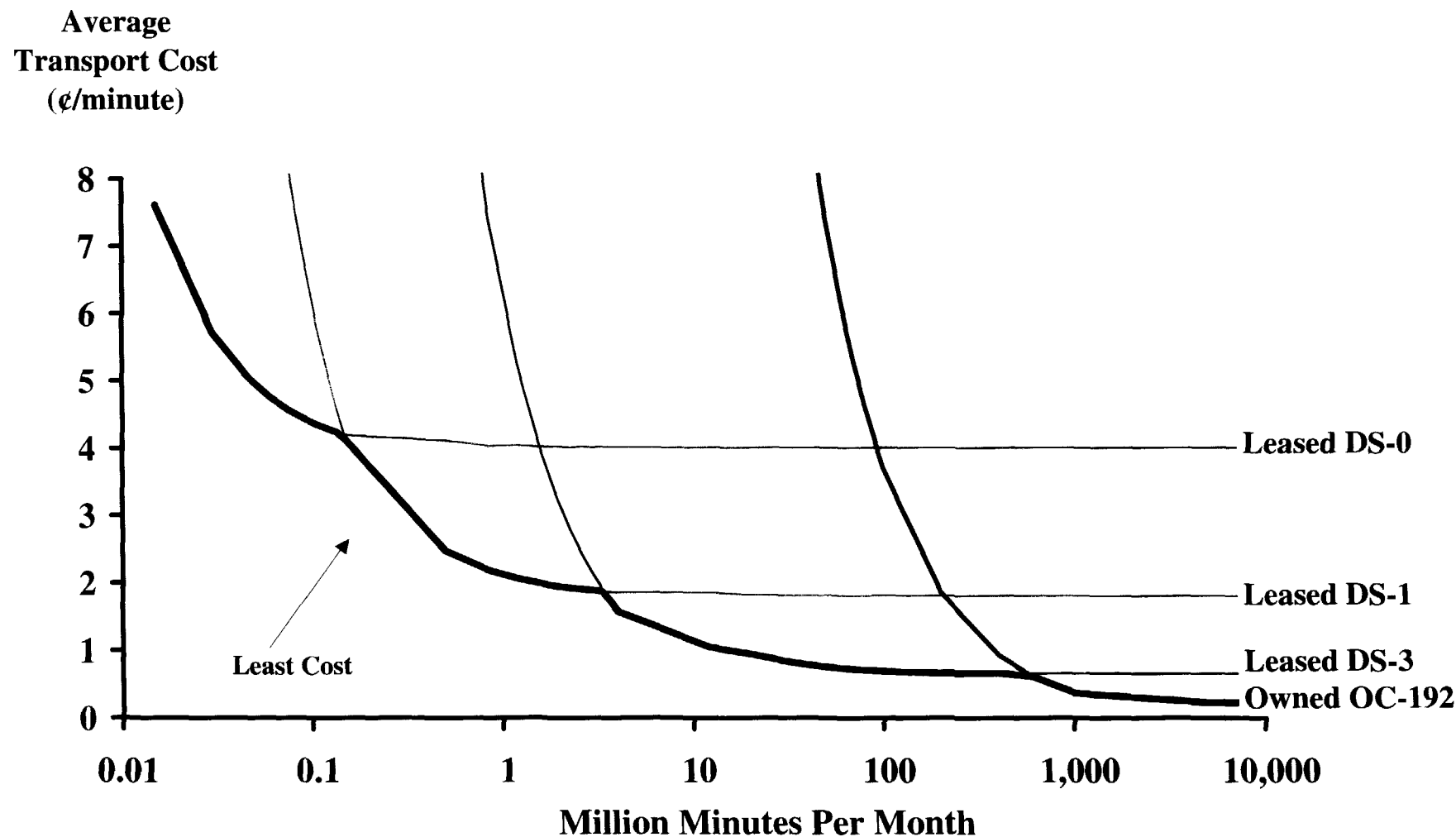
Number	1996/97 Tier	Name
242	C	Salisbury, MD
250	B	Lynchburg, VA
330	A	Evansville, IN
342	B	Upper Peninsula, MI
374	B	Springfield, IL
456	A	Daytona Beach, FL
484	B	Biloxi, MS
521	A	Westphalia, MO
530	C	Pine Bluff, AR
548	C	Wichita Falls, TX

\* LATAs classified in WorldCom Transcend tariff as Tier B or C in 1996, Classified as A in 1997.



## Economies of Route Density in Interexchange Transport

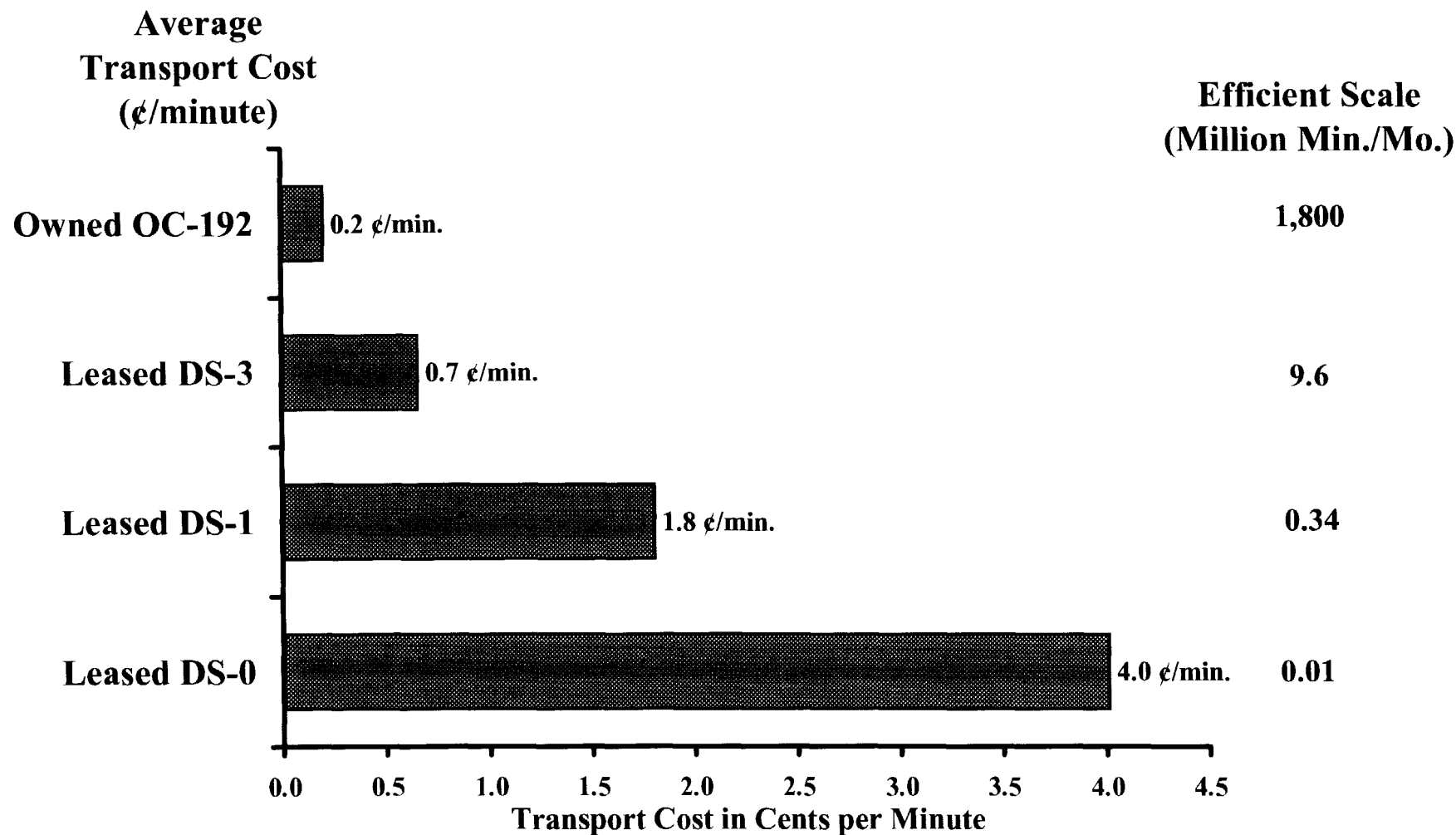
### Average Transport Cost - 1,000 Mile Circuit



Source: Leased Circuit Rates Based on (d/b/a WilTel) F.C.C. Tariff #4, 2/18/98. Owned OC-192 from author's estimates.  
See text for details and explanation of calculation.

## **Economies of Route Density in Interexchange Transport**

### **Average Transport Cost at Efficient Scale (1,000 Mile Circuit)**



Source: Leased Rates from WorldCom Network Services (d/b/a WilTel) F.C.C. Tariff #4, 2/18/98.

Author's estimate for costs of owned fiber. See text for explanation of calculations.

## APPENDIX 2

	)	
	)	
In the Matter of	)	
	)	
Applications of WorldCom, Inc. and MCI	)	CC Docket No. 97-211
Communications Corporation for Transfer of	)	
Control of MCI Communications	)	
Corporation to WorldCom, Inc.	)	
	)	
	)	
	)	

**June 9, 1998**

REPLY AFFIDAVIT OF RICHARD SCHMALENSEE AND WILLIAM TAYLOR  
Table of Contents

I. INTRODUCTION AND SUMMARY.....	1
A. Overview .....	1
B. Summary of Main Conclusions .....	2
1. The entrants are highly unlikely to offer a nationwide wholesale service equivalent to WorldCom's within the next several years. ....	2
2. The entrants are likely to be at a significant cost disadvantage for provision of nationwide wholesale voice service. ....	2
3. Drs. Carlton and Sider's arguments on rate uniformity or rate averaging do not overcome the entrants' limitations. ....	3
4. MCI/WorldCom would have the incentive to raise prices. ....	4
5. The potential impacts of the merger on resellers are important because resellers have been a major, growing source of competition to the current Big Three for residence and low-volume business services. ....	4
II. DRS. CARLTON AND SIDER PRESENT A FLAWED, SIMPLISTIC ANALYSIS OF ENTRY BARRIERS. ....	5
A. Drs. Carlton and Sider's analysis of entry barriers is conceptually flawed and irrelevant because it ignores crucial market structure determinants and focuses on the provision of discrete inputs rather than on the wholesale service needed to compete with WorldCom. ....	5
1. Drs. Carlton and Sider advance an inapplicable concept of entry barriers. ....	5
2. Drs. Carlton and Sider confuse the wholesale service WorldCom provides with the inputs required to provide it. ....	7
3. Drs. Carlton and Sider blur distinctions between wholesale and retail markets. ....	8
B. Entry is not likely adequately to constrain MCI/WorldCom's ability to raise wholesale rates. ....	9
1. Drs. Carlton and Sider make misleading claims about network coverage. ....	9
2. It takes more than a backbone to provide wholesale services. ....	10
3. Entrants are highly unlikely to match WorldCom's service package or costs soon enough to deter MCI/WorldCom from raising wholesale rates. ....	13
A) WORLD COM TOOK MANY YEARS TO DEVELOP ITS CURRENT WHOLESALE SERVICE PACKAGE. ....	13
B) THE ENTRANTS ARE MUCH SMALLER AND ARE NOT LIKELY TO GROW FAST ENOUGH TO ENJOY WORLD COM'S ECONOMIES OF SCALE WITHIN THE NEXT TWO TO THREE YEARS. ....	15
4. Size Matters. ....	22
A) ENTRANTS WILL NOT ACHIEVE NETWORK ECONOMIES EQUIVALENT TO THOSE BENEFITING WORLD COM; THUS, ENTRANTS' COSTS ARE LIKELY TO BE HIGHER. ....	22

B) WORLDCom HAS REPORTED ACHIEVING NETWORK ECONOMIES OF SCALE INDICATING THAT ENTRANTS WILL BE AT A SUBSTANTIAL COST DISADVANTAGE. ....	25
C) SINCE THE RESELLERS USING ENTRANTS' INPUTS ARE LIKELY TO HAVE SUBSTANTIALLY HIGHER COSTS THAN THE CHARGES FOR USING WORLDCom'S SERVICES (ABSENT THE MERGER), THE ENTRANTS ARE UNLIKELY TO CONSTRAIN WORLDCom'S ABILITY TO RAISE RATES. ....	26
D) ONE SIZE DOES NOT FIT ALL: ECONOMIES OF SCOPE BETWEEN PACKET NETWORKS AND SWITCHED LONG-DISTANCE WHOLESALE SERVICES ARE LIMITED. ....	27
5. Allegations regarding capacity growth do not answer our criticisms. ....	28
C. Drs. Carlton and Sider's arguments regarding rate averaging are flawed. ....	29
1. Conceptual flaws ....	29
2. Factual errors. ....	31
A) RETAIL RATES ARE NOT UNIFORM. ....	31
B) DEAVERAGED WHOLESALE RATES ARE AVAILABLE. ....	34
III. INCENTIVES ....	35
A. "Alternative wholesale suppliers" will not undermine the incentive (or the ability) of the merged company to raise wholesale rates. ....	35
1. Entrants and regional carriers are not likely to undermine the incentive of MCI and WorldCom to raise wholesale rates. ....	35
2. The other nationwide vertically-integrated carriers are not likely to undermine MCI/WorldCom's incentives or ability to raise wholesale prices. ....	35
B. Recent data are inconsistent with Drs. Carlton and Sider's analysis of MCI's expected share loss. ....	36
C. Market power vis-à-vis GTE ....	37
D. As Drs. Carlton and Sider recognize, WorldCom has placed a much greater emphasis on wholesale than MCI has. ....	39
IV. RESELLERS HAVE BEEN AN INCREASINGLY IMPORTANT SOURCE OF PRICE COMPETITION FOR RESIDENCE AND LOW-VOLUME BUSINESS CONSUMERS. ....	41
A. Resellers have grown in importance and WorldCom has become an increasingly important supplier to resellers. ....	41
B. Recent data show that the resellers offer competitively priced alternatives to the Big Three's oligopolistic pricing. ....	45
1. Comparisons of average revenue per minute show resellers continue to price substantially below the Big Three. ....	45
2. Statistical analysis of domestic interLATA direct dialed rates shows that resellers have priced more competitively than the Big Three. ....	48
C. Dr. Hall's ARPM analysis does not refute our analysis of long-distance pricing by the Big Three and other carriers. ....	50
V. CONCLUSION. ....	51

## I. INTRODUCTION AND SUMMARY

### A. Overview

1. We are Dr. Richard Schmalensee, the Gordon Y Billard Professor of Economics at the Massachusetts Institute of Technology, Deputy Dean of the MIT Sloan School of Management and Director of MIT's Center for Energy and Environmental Policy Research, and Dr. William Taylor, Senior Vice President, head of the Telecommunications practice and of the Cambridge office of National Economic Research Associates, Inc. Our qualifications are set out in our initial affidavit on the proposed MCI/WorldCom merger, filed with the Federal Communications Commission on March 13, 1998.<sup>1</sup>

2. In our initial affidavit, we described the substantial increases in concentration and the likely increases in market power that would arise if the merger of WorldCom and MCI were completed. We demonstrated WorldCom's disproportionate influence on wholesale long-distance services and described how the merger would materially change WorldCom's incentives to provide wholesale services and capacity to resellers. We also demonstrated that the merged company's changed incentives would undermine the resellers' increasingly effective competitive alternatives to the oligopolistic price-following behavior by the "Big Three" (AT&T, MCI and Sprint) for residence and low-volume business customers.<sup>2</sup>

3. In this affidavit, we respond to the Second Declaration of Drs. Carlton and Sider regarding the proposed merger's potential impact on competition in long-distance telecommunications. We focus on contentions that "it is highly unlikely that the proposed transaction will adversely affect competition in light of the rapid entry, expansion and technological changes now taking place...."<sup>3</sup> We also consider their allegations that WorldCom would not have an increased incentive to raise wholesale prices faced by resellers of long-distance services to residence and low-volume business customers if the merger is approved.

---

<sup>1</sup> See Affidavit of Richard Schmalensee and William Taylor, Appendix 4 to COMMENTS OF GTE SERVICE CORPORATION, *ET AL.* ON WORLDCOM/MCI'S JOINT REPLY TO PETITIONS TO DENY AND COMMENTS, in the Matter of Applications of WorldCom, Inc. and MCI Communications Corporation for CC Docket No. 97-211, Transfer of Control of MCI Communications Corporation to WorldCom, Inc. cited below as "Initial affidavit of Schmalensee and Taylor" or "Our initial affidavit."

<sup>2</sup> Unless otherwise indicated we use the term "resellers" to include both those with some transmission and/or switching facilities as well as pure "switchless" resellers who have no network facilities of their own; thus, we include all carriers other than the Big Four (AT&T, MCI, Sprint and WorldCom) in this group. We use this definition because the carriers below the Big Four have limited networks and, thus, depend on leased capacity or switched wholesale services provided by the Big Four to originate and/or terminate substantial proportions of their traffic.

<sup>3</sup> Second Declaration of Dennis W. Carlton & Hal S. Sider filed on March 19, 1998, CC Docket No. 97-211 (cited below as Carlton and Sider), see p. 4.

## B. Summary of Main Conclusions

### **1. The entrants are highly unlikely to offer a nationwide wholesale service equivalent to WorldCom's within the next several years.**

4. Drs. Carlton and Sider gloss over crucial differences between WorldCom and entrants. They focus on a limited set of discrete inputs (notably fiber backbone routes) being constructed in certain regions of the country. They overlook that resellers employ WorldCom's nationwide wholesale long-distance services. Provision of such a service requires: (1) transmission beyond the backbone, (2) switching, network monitoring, call routing and other vital systems, (3) customized software to integrate the systems, and (4) establishing the commercial relationships and connections needed for access to local exchange company (LEC) networks.

5. Thus, the fiber backbones under construction are only one of many inputs required to provide wholesale switched long-distance services; and, the entrants will need substantial time before they can compete effectively with WorldCom's wholesale long-distance services. WorldCom's own history confirms just how time-consuming it is to develop true nationwide switched wholesale long-distance service.

6. In addition, Drs. Carlton and Sider overlook the strategic focus of many new entrants—on packet networks designed to transport Internet protocol (IP) traffic and other data and business services, as opposed to the switched voice services WorldCom offers to its wholesale customers for resale to residential and small business customers. Moreover, to the extent that new entrants deploy IP facilities, they may not be in a position to also offer services competitive with conventional circuit switched long-distance services.

### **2. The entrants are likely to be at a significant cost disadvantage for provision of nationwide wholesale voice service.**

7. Wholesale long-distance service inputs are subject to volume discounts and/or involve substantial fixed up-front costs. The entrants are small and not likely to achieve quickly WorldCom's scale or scope; thus, the entrants are highly likely to be at a substantial cost disadvantage for a period that extends well beyond the two years referenced in the *Merger Guidelines*.<sup>4</sup>

8. If, as WorldCom and MCI argue, companies as large as they are can achieve lower unit costs for network transport, access, and other inputs, from increased volumes, then clearly the—much smaller, less extensive—entrants will tend to have substantially higher costs than has WorldCom.

9. Drs. Carlton and Sider argue that entrants need not develop WorldCom's nationwide wholesale service package to exert competitive pressure because resellers can assemble a

<sup>4</sup> See Section 3.2 of United States Department of Justice and Federal Trade Commission, *Horizontal Merger Guidelines*, cited below as "the *Merger Guidelines*," or "the *Guidelines*," April 1992.



comparable package from a group of vendors.<sup>5</sup> However, resellers seeking to assemble such a package (on their own or indirectly via a wholesale carrier) will find it more time-consuming, cumbersome and costly than contracting with the pre-merger WorldCom.

10. Alleged cost advantages to the entrants from using new technologies in their networks—mainly Internet protocol (IP) telephony—would affect only a small part of the entrants' costs for providing the long-distance services on which we focus. Providing switched voice services will continue to require substantial additional facilities, even if they can make use of the same fiber backbone. Further, if the new technologies were really cost competitive for providing the relevant long-distance services, WorldCom (which owns its own substantial IP network) would be using the same technologies for provision of its own wholesale long-distance services. And, WorldCom's larger scale would also give it a cost advantage relative to entrants in IP telephony.

11. Thus, it is highly unlikely that the entrants will overcome their significant cost disadvantages in time (according to *Merger Guideline* standards) to constrain MCI/WorldCom's ability to: (1) increase prices significantly (by 5-10 percent) over the wholesale long-distance service prices WorldCom would have charged absent the merger; (2) impede resellers' efforts to compete with MCI/WorldCom in retail markets; and (3) raise prices to end users.<sup>6</sup>

12. Note also that capacity expansion by AT&T and Sprint would do little to constrain wholesale pricing by MCI/WorldCom. Although technological change may increase their capacity and reduce their costs, these carriers—like MCI/WorldCom—would not lower prices to resellers because they have strong incentives to limit the growth of resellers to keep their own retail margins as high as possible.

**3. Drs. Carlton and Sider's arguments on rate uniformity or rate averaging do not overcome the entrants' limitations.**

13. Drs. Carlton and Sider argue that even though entrants are building fiber backbones to serve only the more densely populated regions, rate uniformity requirements will protect consumers in areas beyond the regions covered by the entrants' backbone networks.<sup>7</sup> Their arguments are flawed because:

- Higher costs to originate and terminate off-network traffic could have a substantial impact on the entrants' relative average nationwide costs and rates.
- Wholesale rates are not subject to rate uniformity requirements, and WorldCom's wholesale rates are not set uniformly throughout the country.

---

<sup>5</sup> Carlton and Sider, pp. 34-35.

<sup>6</sup> This effect, as we noted in our initial affidavit, would go hand in hand with the impacts of the merger on concentration and price in the high-volume business market.

<sup>7</sup> Carlton and Sider, at paras. 8, and 23 – 29.

- Despite interstate retail rate uniformity requirements, carriers can and do effectively deaverage their retail rates and craft marketing efforts to attract a disproportionate share of calls on lower-cost routes or states and to respond to regional variations in competitive conditions.
- Thus, millions of customers are unlikely to be protected from the merger's effects.

#### **4. MCI/WorldCom would have the incentive to raise prices.**

14. Entry would not undermine the ability or the incentive for MCI/WorldCom to increase wholesale prices and/or limit the supply of wholesale services. Furthermore, contrary to allegation by Drs. Carlton and Sider, MCI (like AT&T and Sprint) has been holding back from competing for wholesale customers.

- If the Big Three were not holding back, WorldCom would not have been able to capture such a disproportionate share of the wholesale market.
- Further, MCI (like AT&T) has shown its lack of interest in the wholesale market in other ways, e.g., MCI's uncompetitive bid for GTE's resale business,<sup>8</sup> and behavior that has engendered reseller suits against MCI (and AT&T) demonstrate that MCI has not been an active wholesale competitor.

15. If the merger occurs, it would change WorldCom's profit-maximizing price to GTE and to other resellers with strong preferences for—i.e., low cross elasticities of demand for—WorldCom's unique, wholesale service package.

#### **5. The potential impacts of the merger on resellers are important because resellers have been a major, growing source of competition to the current Big Three for residence and low-volume business services.**

16. The resellers, in conjunction with WorldCom, have grown substantially in the last six years—more than doubling their combined market share to about 27 percent of total (wholesale and retail) long-distance revenues in 1997 from only about 11.8 percent in 1991.<sup>9</sup> Excluding WorldCom, the resellers' share of total long-distance revenues grew from about 11.3 percent in 1991 to 19.8 percent in 1997, and the resellers accounted for about 25 percent of residence and low-volume business revenues in 1997.<sup>10</sup> Thus, resellers are playing an increasingly important role. Further, WorldCom's growing importance as a wholesale provider to resellers is shown by the growth of its: (1) share of wholesale revenues from 13 percent in 1989 to 38 percent in 1997; and (2) wholesale revenue from \$347 million in 1989 to \$1.8 billion in 1997. (See Section IV.B and Exhibits 5, 6 and 7).

<sup>8</sup> Direct Testimony of Debra R. Covey on Behalf of GTE Corporation, Colorado Public Utilities Commission, Docket No. 97A-494T, March 12, 1998 (Cited below as Testimony of Debra R. Covey in Colorado Docket No. 97 A-494T.), pp.5, 8, 10.

<sup>9</sup> FCC, Long Distance Market Shares, First Quarter 1998, June 1998, Table 3.2.

<sup>10</sup> We estimated these data from FCC, *Ibid.*, and from Frost and Sullivan data on residence and low-volume business revenues as a percent of total carrier revenues for the major facilities-based carriers.

17. As we showed in our initial affidavit, resellers achieved these inroads by offering lower prices and/or more desirable services.<sup>11</sup> Using more recent data than were available to us when we wrote our initial affidavit, we find that resellers continue to charge substantially less than the Big Three—about 15 percent lower on average. Furthermore, MCI raised its rates closer to AT&T's in 1997. Finally, the Big Three's average charges to low-volume customers (with 0-40 minutes of use per month) increased, while resellers' average charges to these customers declined from 1996 to 1997.<sup>12</sup>

18. Because the merger is likely to raise resellers' input costs, it will harm competition and consumers (especially residence and low-volume business customers). Thus, if the merger is approved, it would detract from resellers' increasingly important role in undermining the oligopolistic price-following of the Big Three.

## **II. DRS. CARLTON AND SIDER PRESENT A FLAWED, SIMPLISTIC ANALYSIS OF ENTRY BARRIERS.**

**A. Drs. Carlton and Sider's analysis of entry barriers is conceptually flawed and irrelevant because it ignores crucial market structure determinants and focuses on the provision of discrete inputs rather than on the wholesale service needed to compete with WorldCom.**

### **1. Drs. Carlton and Sider advance an inapplicable concept of entry barriers.**

19. According to Drs. Carlton and Sider, entry barriers are "...costs that must be incurred by an entrant that incumbent firms do not (or did not have to) bear"<sup>13</sup> This definition of entry barriers suggests that neither sunk costs nor economies of scale matter. It is misleading for purposes of predicting entry and expansion behavior in the context of the MCI/WorldCom merger because it ignores whether the incumbents' costs are sunk, and it assumes away the influence of scale economies and other cost advantages.<sup>14</sup> Therefore,

<sup>11</sup> See Section II (D) of our initial affidavit.

<sup>12</sup> As discussed in more detail below, these results are based on an analysis of average revenue per minute (ARPM) data for residence customers. Our ARPM data are for a single customer class over a short time period; thus, they are not subject to the same limitations as Dr. Hall's ARPM data, and, in fact, are consistent with results obtained using regression analysis to control for differences in calling mix. As explained below, Dr. Hall's approach is flawed and his analysis does not refute our earlier work on residence rates because his ARPM data mix together many different customer types (e.g., residence, small business and large business) and many different services.

<sup>13</sup> Carlton and Sider, para 10.

<sup>14</sup> As Professor Scherer states:

this definition should not be used in an industry where the incumbents have substantial sunk facilities—which can be expanded at relatively low incremental costs—and, in which economies of scale—particularly when associated with sunk costs—are key determinants of costs and price.

20. Economies of scale are particularly important market structure determinants in the context of the proposed merger because WorldCom has and should be expected to maintain substantial scale and scope advantages over the entrants. First, WorldCom's traffic volumes are and can be expected to remain vastly larger than the entrants; and, since many of the costs of providing long-distance services reflect economies of scale, the entrants will have higher unit costs for many years to come. Second, as explained below, WorldCom has already developed an extensive wholesale service package that cannot easily be reproduced by the entrants. Further, retail competitors who try to utilize the entrants' more limited wholesale services and less extensive networks are likely to find a higher cost alternative than that which WorldCom could make available, absent the merger. Therefore, as explained in detail below, contrary to Drs Carlton and Sider's allegations (at para. 13), large scale entry is necessary to permit an entrant to be a cost-competitive, facilities-based provider.<sup>15</sup>

21. In addition, under the Department of Justice *Horizontal Merger Guidelines*, the issue is whether entry is:

so easy that market participants, after the merger, either collectively or unilaterally could not profitably maintain a price increase above pre-merger levels.

Entry is that easy if entry would be timely, likely, and sufficient in its magnitude, character and scope to deter or counteract the competitive effects of concern.<sup>16</sup>

All phases of the entry effort will be considered, including, where relevant, planning, design, and management; permitting, licensing, and other approvals; construction, debugging, and operation of production facilities; and promotion (including necessary introductory discounts),

---

...barriers to entry... can take several forms.... the dominant firm (or firms) may enjoy absolute unit cost advantages over fringe rivals as a consequence of superior patented production methods or having acquired on favorable terms superior nonreproducible production inputs.... Second, as suggested already, the dominant firm's unit costs may be lower because of scale economies in production, physical distribution, purchasing, capital raising, or promotion not attainable by smaller fringe rivals.

Scherer, F.M., *Industrial Market Structure and Economic Performance*, Rand McNally, Sec. Ed., 1980, p. 236. Footnotes omitted.

<sup>15</sup> Their argument ignores our original discussion of the substantial cost disadvantages associated with entrants' efforts to "assembl[e] the inputs necessary to compete." See our initial affidavit at paras 66-67.

<sup>16</sup> *Merger Guidelines*, Section 3.0.

marketing, distribution, and satisfaction of customer testing and qualification requirements.<sup>17</sup>

Thus, under the *Guidelines*, the entry analysis must consider all of the planning, inputs and institutional arrangements needed to provide the product or service; and, as we show below, doing so—i.e., entering into the provision of switched wholesale services—is anything but “easy.” Although entry is likely for provision of some inputs to wholesale service, i.e., backbone fiber routes and POPs for some locations, it will be neither timely nor sufficient to deter the market participants from profitably maintaining a price increase for wholesale service. It would take the entrants a long time to develop a comparable wholesale service package and to reach WorldCom’s scale. As we explain in detail below, all of these steps cannot be done soon enough and on a large enough scale to be “timely” under the *Guidelines*, i.e., the entrants are not likely to:

quickly ...achieve a significant impact on price in the relevant market. The Agency generally will consider timely only those committed entry alternatives that can be achieved within two years from initial planning to significant market impact.<sup>18</sup>

Entry into the provision of some inputs will not, in the interim, be sufficient to defeat price increases. Furthermore, at least some of the entrants—those focusing on IP and packet switched services—may not compete directly with WorldCom to provide switched long-distance services.

## **2. Drs. Carlton and Sider confuse the wholesale service WorldCom provides with the inputs required to provide it.**

22. Drs. Carlton and Sider confuse the discrete inputs being constructed by entrants with the nationwide wholesale service that WorldCom provides. WorldCom offers a wholesale service—an integrated nationwide service with end-to-end control and a variety of features. The entrants are building some inputs required for telecommunications services, mainly the fiber backbone facilities. However, as we explain below, wholesale long-distance service requires much more than a fiber backbone and POPs, and switched service, facilities-based entrants like IXC and Frontier are highly unlikely to achieve the economies of scale and scope needed to compete with WorldCom for many years. Thus, as we explain below, the entrants’ efforts are unlikely to produce wholesale long-distance telephone services equivalent in cost, quality and features to WorldCom’s in time to prevent WorldCom from raising its prices by a significant amount.

23. Drs. Carlton and Sider’s assertion that the entrants “do not appear to face significant entry barriers...entrants are not necessarily at a disadvantage relative to incumbents in assembling the inputs necessary to compete in the marketplace”<sup>19</sup> is based on a flawed

<sup>17</sup> *Merger Guidelines* Section 3.1.

<sup>18</sup> *Merger Guidelines*, Section 3.2.

<sup>19</sup> Carlton and Sider, paras 12 and 13.

concept of “the inputs necessary to compete in the marketplace.” Their entry analysis focuses heavily on what they call “population coverage”—which encompasses only backbone fiber networks and associated POPs. Thus, they do not adequately address:

- the rest of the transmission network,
- differences in the types and size of network connections,
- differences in switching and transmission protocols,
- the time consuming process needed to establish the numerous vital systems required to offer a wholesale service competitive with WorldCom’s, and
- the lengthy process needed to establish the commercial relationships and the traffic volumes needed for favorable rates for various access and network connections required for wholesale services.

### **3. Drs. Carlton and Sider blur distinctions between wholesale and retail markets.**

24. In referring to “the marketplace” Drs. Carlton and Sider have blurred the lines between inputs and services and between at least two distinct service markets. This problem is also reflected in their allegation that “...firms can enter into the provision of long-distance service as resellers, performing the marketing, billing and customer service functions while leasing at wholesale rates either complete services or switching and transmission capacity.” (para 13) Firms’ ability to “enter into the provision of long distance service as resellers” could offer an avenue of entry into retail markets, if wholesale services were available at cost-competitive rates. However, such entry would do little or nothing to address the likely harm to resellers from the adverse effects of the merger on wholesale markets.

25. WorldCom itself has recognized that there is a separate wholesale market. For example, WorldCom’s 1995 annual report refers to:

... the rapidly growing wholesale market....

The company’s continuing success in the wholesale market....

our leading position in the wholesale market....

Our commitment to the carrier market....<sup>20</sup>

---

<sup>20</sup> WorldCom Annual Report 1995, Message to Shareholders, March 1996; emphasis added.

**B. Entry is not likely adequately to constrain MCI/WorldCom's ability to raise wholesale rates.**

**1. Drs. Carlton and Sider make misleading claims about network coverage.**

26. According to Drs. Carlton and Sider:

The proposed transaction does not significantly reduce competitive alternatives for wholesale and retail customers. The vast majority of the nation's population lives in areas now served by seven or more network providers.

.... the vast majority of the nation's population lives in areas that are now or will soon be served by a substantial number of long-distance networks. [Thus, almost no customers will experience a decrease in the number of operational networks due to the merger.]<sup>21</sup>

27. These claims are misleading because they do not recognize that the multiple carriers are not nationwide and, thus, are not cost-competitive alternatives to WorldCom. Since there are only four nationwide networks, it is clear that most consumers do not have "seven or more" nationwide networks to serve them. Rather, even if we base the analysis on the apparently flawed population coverage data presented by Drs. Carlton and Sider,<sup>22</sup> about 83 percent of them have four today, and that figure would decline to three if the merger were approved. Further, as discussed in the next section, even if the entrants' networks were to be deployed as scheduled, that does not mean that resellers would find it as cost effective to take service from the entrants as from WorldCom.

28. In asserting that the new entrants will have about as many POPs as WorldCom had in 1996, Drs. Carlton and Sider ignore that:

- Developing a backbone network and POPs is only a small part of the process to attain the network and support systems that WorldCom has now. (See Section II (B) (2) below.)
- Once the backbone fiber is in place, entrants must still overcome the time-consuming, costly process to develop the other inputs needed to offer a complete wholesale package. It would be risky and uneconomical for them to deploy all of the other components for a full wholesale long-distance service before determining whether and from what geographic and product markets demand may (or may not) develop.

<sup>21</sup> Carlton and Sider, para. 8, emphasis added, and paras 38-39.

<sup>22</sup> See Reply Affidavit of Robert Harris, CC Docket 97-211, Section IV for discussion of flaws in the Carlton and Sider population coverage data.

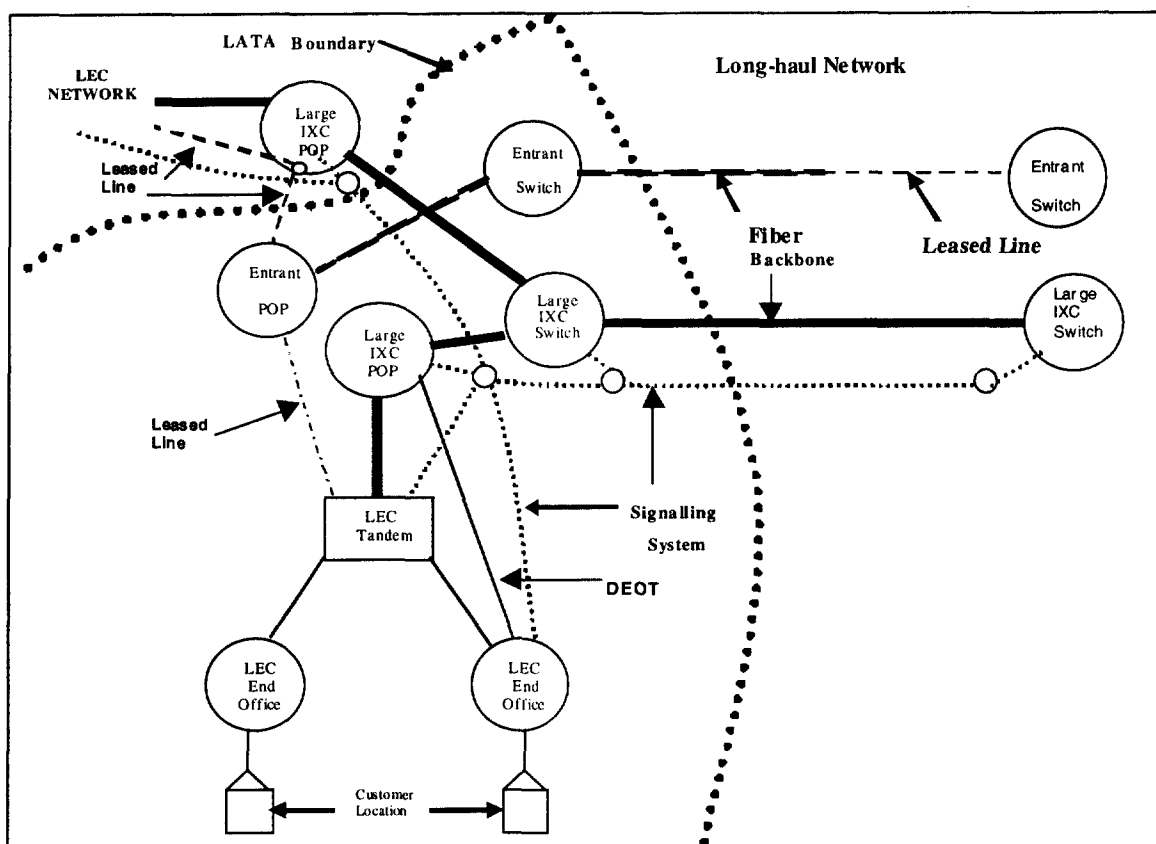
- Despite its unique, exceptionally rapid growth, WorldCom needed a substantial amount of time to grow to its current status in the wholesale market. For example, even with a unique series of mergers, it took WorldCom:
- 11 years to grow from Qwest/LCI's current wholesale revenues to WorldCom's current (1997) wholesale revenues;
- seven years to grow from IXC's current wholesale revenues to WorldCom's current wholesale revenues; and
- six years to grow from Frontier's current wholesale revenues to WorldCom's current wholesale revenues.
- Similarly, WorldCom needed from five to 11 years to grow from its competitors' (i.e., Qwest/LCI, Frontier and IXC's) current total toll revenues to its own current total toll revenues.
- Entrants are, thus, likely to have higher unit costs even after they build out their backbones over the next two years.

## **2. It takes more than a backbone to provide wholesale services.**

29. Provision of wholesale long-distance services requires more than just fiber backbones and POPs. To better understand the limited role of the backbone fiber routes and POPs—to which Drs. Carlton and Sider confine their analysis—it may be useful to trace a long-distance call from end to end. As shown in Exhibit 1, at the originating end of the call, the call is generally transmitted from a customer's location to an LEC end office via a local loop (or PBX trunk for business customers). The LEC switch then routes the call to an IXC via the LEC's transport facilities to its tandem switch and then to the IXC or, for large IXCs (with higher traffic volumes), via a dedicated end office trunk (DEOT) connection directly to the IXC's point of presence (POP). From the POP, the call is carried via leased lines (supplied by the LEC or another carrier) or the carrier's own network facilities to the IXC's switch. For entrants with limited networks, it may not be until the call reaches its own switch that it is actually carried on the carrier's own facilities. Even then, part of the backbone capacity could be leased from another carrier. (Leased circuits are shown as dashed lines on the exhibit.) At the terminating end of the call the process is essentially repeated in reverse order from the IXC's switch via its own or leased facilities to the POP and then via direct connections or an LEC tandem switch to the end office of the customer for whom the call is intended. In addition, before the call is actually carried over the network, a separate network (signaling system) polls the various possible switches and routes to see how to set up the call most efficiently. Further, before any calls can be made, it is necessary to set up all of the local access and transport contracts and the physical connections that go with them.



**Exhibit 1**



30. It is not possible to show all of the network and service components in a schematic like that above. However, we will try to (partially) augment the diagram with the following summary of the major network and service components needed to provide long-distance service. Besides fiber, rights of way and conduit, transmission over a backbone requires:

- Electronic and photonic equipment (fiber optic terminals and add-drop multiplexers) at 60 mile intervals to carry the signal over (i.e., to “light”) the fiber; and
- Additional electronics and cross connects to parse the raw capacity into usable pieces for various services and customers.

Building a network also requires:

- Forecasting and design efforts to develop the basic network plan;
- Purchasing customized switches to route calls to the proper locations;
- Signaling systems to set up the calls along the network;
- Network control centers to monitor and manage the network;